



TASK

USSR Postwar Reconstruction

by Hans Blumenfeld

1948

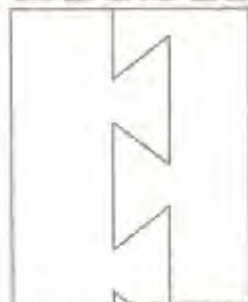
NO. $\frac{7}{8}$ 1948



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*TASK, 1948.
Post Office Box 117
Cambridge 38, Mass.
Issue: Number 7-8
Price: One dollar.
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This is the first postwar issue of TASK.

The original impetus for TASK came from students and teachers in Cambridge, Massachusetts. It was founded before the war to examine the physical, social and economic aspects of city and resources planning, and of housing and architecture. It aimed to establish the broadest exchange of information, ideas, and experiences among architects, planners, housers, other professionals, students, and those generally interested in these and related fields. Before its publication was suspended during the war, six issues were published, the last three in New York, where Henry H. Reed, Jr. generously assumed the responsibility for them.

TASK has been revived because of the frequent requests of people who feel a need for the stimulus and factual material which such a publication can offer. TASK's readers and friends have believed that a forum such as TASK can help to formulate and express a higher standard of demand than prevails at present for homes, communities and architecture, and for the planning of cities, regions and the nation. They also feel that TASK's value as a medium of expression for students and new authors and as a provoker of controversy and new ideas should be preserved and strengthened.

Thus TASK has been revived. Whether it will flourish will depend on you, its friends and readers. The direction it takes also will depend on you. TASK has striven for ever broader representation — in ideas, authors and audience. It needs suggestions and active support.

It has been suggested by some that TASK concentrate on single-purpose issues, as does this edition. Among the subjects proposed are: politics and planning, civic design and aesthetics, industrial location and buildings, national planning and regional resources development.

Annual, semi-annual and quarterly publication has been variously proposed. Among the policy suggestions is one that TASK be an annual summary and critique of the planning and architectural developments of the year.

We all must realize that the frequency of publication depends on the support TASK receives. This issue is an annual (serving as an equivalent of two issues of the former TASK), supported largely by the generosity of individual financial donors and voluntary editorial efforts. Though again published in Cambridge where it originated, students although greatly interested were in general, under the pressure of postwar education, unable to assist TASK extensively. Also it is doubtful whether, with irregular financial support, and without institutional affiliation, TASK can appear regularly.

Prior to publication, inquiries were sent to those of TASK's subscribers whose addresses might have changed during the interim period. Comments were sought on return postcards. Although there were some chiding, and often unfortunately true, remarks on the circulation operations of TASK, such as, "I wrote you and never heard from you at all", the consensus was that a revived TASK would be welcomed as a most valuable supplement to the other journals in architecture, planning and related fields. Not all were as extravagant in praise as the man who wrote, "I think TASK is the best magazine in the world", but card after card stated, "look forward to this issue with great eagerness", or, "so glad that TASK will be out again". A minister from the state of Washington wrote, "I wish to continue indefinitely". Encouraging cards came from silversmiths, sociologists, interior decorators, doctors, clergymen, industrialists, real estate and commercial firms, government officials, labor union officials and many others of diverse interests, as well as from architects and planners.

Such encouragement has prompted TASK to reappear. Its future will be determined by your desires and participation.

CONTENTS

Cover *Gyorgy Kepes*

Page 3 **Reconstruction** *Catherine Bauer*

Reconstruction:

- 7 **The Hague** *Willem M. Dudok*
- 17 **Belgium** *Adolphe Puissant*
- 20 **Great Britain** *Jaqueline Tyrwhitt*
- 25 **USSR** *Hans Blumenfeld*
- 34 **France** *Catherine Bauer*
- 35 **Germany** *Walter Gropius*
- 37 **Italy** *E. G. Faludi*
- 43 **Poland** *Henry N. Cobb*
- 47 **Warsaw** *Helene and Szymon Syrkus*
Matthew Nowicki
- 50 **The Sudan** *Abdel Saleh*
- 52 **Latin America** *Francis Vioich*
- 57 **Canada** *Fred Lasserre*
- 63 **Bizerte** *P. A. Emery*
- 66 **Tokyo** *Charles A. Beard*
- 73 **UNESCO** *Julian Huxley*
- 74 **IFHTP** *Morris H. Hirsh*

- 75 **The Housing Impasse** *Richard F. Wall*
- 79 **On Genuine Education** *Joseph Hudnut*
- 84 **Architecture and Art** *Christopher Tunnard*
- 85 **The Press and Planning** *Frederick Gutheim*
- 86 **On Arrival** *John Bayley*
- 88 **Planning Notes** *C. Eric Carlson*
- 92 **Bibliography** *Sam Spielvogel*
- 95 **Cumulative Index**

RECONSTRUCTION: USSR

Hans Blumenfeld

THE problems of reconstruction in the Soviet Union differ from those in other nations in three principal ways:

1. The destruction resulting from the war was greater than in any other country.
2. Reconstruction did not await the end of hostilities, but was undertaken even at the time of the most intense fighting.
3. Postwar planning was not something started *ad hoc*, but was a resumption — with modifications based on war-time changes — of the previously established planned development of the productive forces of the USSR.

The extent of destruction is clearly exemplified in the field of housing. About one and a half million urban dwellings and three million farm houses were destroyed, leaving homeless 25 million people, twice the combined populations of Sweden, Denmark and Norway.

The German invasion made it necessary to evacuate a substantial part of the equipment of the armaments, chemical and machine-building industries eastward to Siberia, beyond the range of destruction. Here new factories and new communities had to be built to house the equipment and the families of the workers who operated it. In addition, mines and oil wells had to be dug, blast furnaces constructed, and so forth, to replace those installations which could not be removed. Fifteen years ago a sparsely populated agricultural region, the Soviet East became a great industrial base contributing to military successes in wartime and to the rebuilding of the national economy with the coming of the peace.

While the war still was in progress, as areas were liberated from German occupation, urgent measures were taken to restore their economic and cultural life. First, with army aid, roads and railroad lines were rebuilt, water and power provided, and bakeries opened to save the population from starvation. Civilian reconstruction started with factories, schools, hospitals and health centers. Prefabricated barracks for 300 persons, which could be assembled in four to six hours, served as primary emergency shelters. The repair of homes was commenced immediately, and a network of factories for building materials and prefabricated units was established. As it obviously was impossible to rehouse everyone decently within a short period, the Soviets concentrated on making life bearable by supplying reasonably adequate community facilities, including dining halls, grocery stores, laundries, theaters, clubs, libraries and kindergartens.

The planned reconstruction of the USSR is in a sense merely a continuation of planning commenced long before the war. The first three Five

Hans Blumenfeld, Senior Land Planner, Philadelphia City Planning Commission, and former Head of Research, Philadelphia Housing Association, has studied and practiced architecture and city planning in this country and abroad. He has written extensively about housing and planning in the USSR (including an article in TASK 3), where he worked from 1930 to 1937. His work in Russia included the planning of Vladimir and Kirov.

Year Plans (1927-1942) aimed to provide a higher standard of living for the Soviet peoples by developing the nation's economic potential. This long and stubborn uphill fight was set back about ten years by the war. However, machinery of a fourth Five Year Plan has been set in motion to compensate for this loss by accelerating production through a more scientific distribution of the labor force and an increase in the output per worker.

The plan calls for an extraordinarily rapid expansion of the means of production as the basis for growth of both consumer and defense industries and a slower, though substantial increase in the supply of consumer's goods. Industrial enterprises are to be distributed more evenly over the nation, and to be moved closer to both raw materials sources and markets, thus creating relatively self-supporting, economically balanced regions.

Soviet industrial planning is translated into action by a pyramidal organization ranging from the ministries (formerly called commissariats) responsible for major production fields, boards in charge of specific industries, and trusts supervising groups of enterprises, down to individual factories and shops, and brigades, or teams of workers, within the plants.

The state controls all major transportation, communications, mining and heavy industry, but a considerable part of light industry is run by local governmental units and by producers cooperatives. In the field of agriculture, the roles of the state and the cooperatives is reversed; nationally owned farms account for less than ten percent of the total production. Collective farms (*kolkhozes*), centered around villages, produce most of the country's food supply and have become the basic element in rural planning.

Different as the economic system of the Soviet Union is from that of the United States, the problems each nation faces in the fields of construction, housing and city planning are strikingly similar in many instances.

The plan for raising the material standard of living requires a vast building program. The housing problem has assumed particularly staggering proportions which result from the cumulative effect of four factors: a totally inadequate existing supply of dwellings, an unprecedented increase in urban population, absorption of building materials and workers into indispensable industrial construction, and the destruction of millions of houses by the invaders.

The Russian building industry was even more technically backward than that of western countries. It depended mainly on the seasonal labor of peasants. In 1935, however, the government initiated a carefully considered program

aimed at the creation of a modern building industry. Commissariats (now ministries) for building materials and for the building industry were established in 1938 and 1939, respectively. To these have been added ministries for building machinery and for construction of fuel and military installations. Ministries for municipal economy and for housing and community building are under the jurisdiction of the constituent republics. They are, however, coordinated by a National Committee on Architectural Affairs which is directly responsible to the Cabinet; a similar committee is in charge of *kolkhoz* and village building.

This multiplicity of organizations — to which must be added others created by many ministries for their own building activities — seems to presage considerable overlapping and friction. But this danger may be overcome by the coordinating effect of the Five Year Plan and by the all-pervading influence of the Communist Party, which generally acts as the lubricating oil as well as the sparkplug of the entire Soviet apparatus.

In addition to setting space and structural standards for all industrial construction, the Ministry of Building Industry has set up trusts, each with its own plant and permanent labor force. The Ministry has remarkable achievements to its credit. During the war it built blast furnaces in seven months, a large Diesel factory in ten months. Construction went on at temperatures 50° and 70° below zero; concrete was poured with the aid of steam and electric heat. Considerable ingenuity was shown in using local materials, notably slag and gypsum. In Central Asia, where neither wood nor steel were available, many war factories were roofed over with thin shell brick vaults spanning 66 feet. A theatre in Tashkent was built using the same technique. In the destroyed cities, laboratory tests were made of the surviving materials, and many were used in rebuilding. Finely ground brick rubble was widely used as mortar.

Lack of building materials continues to be a most serious bottleneck. The Soviet Union has put its ace trouble shooter, L. M. Kaganovich, in charge of the Ministry of Building Industry. The current Five Year Plan provides for doubling the output of cement and of glass and for mass production of many materials previously not widely used. These include ceramic tile, mineral wool, fiber slabs and other insulating materials, as well as wood, metal, and asbo-cement building details and new types of sanitary equipment, hardware, etc. The production of heavy broad-flanged double-T beams is being increased greatly; pre-stressed steel for reinforcing concrete is being used more widely.

Shortage of building machinery is even more

serious than the lack of building materials. It is reported that in the summer of 1946 there was not a single steamshovel or bulldozer in Minsk, the destroyed capital of Byelorussia. Efforts are being concentrated primarily on mechanization of excavating and concrete pouring. Considerable research and experimental work is being done by the Committee on Architectural Affairs and by several ministries as well as by the Academy of Science.

The scope of the activities of the Committee on Architectural Affairs may be seen from the following list of its main departments:

1. Planning and building of cities and settlements.
2. Housing.
3. Community buildings.
4. Industrial design.
5. Construction technique.
6. Architectural building control.
7. Preservation of monuments.
8. Educational institutions.
9. Organization of architectural projects.
10. Specifications and estimates.
11. Scientific-technical information and inventions.

Hand in hand with the development of building materials and building techniques goes the training of about half a million new workers and technicians. Their annual wage is to rise more sharply than that of other workers, 67 percent instead of 48 percent, and the productivity of labor is scheduled to increase 40 percent, resulting in a 12 percent reduction of gross building costs.

Will these efforts be sufficient to solve the housing problem? How long will it take?

For the first time, the Soviets have dared to outline a program commensurate with the magnitude of the task. They intend to build one billion square meters of floor space, the equivalent of 25 million dwelling units¹ during the next fifteen to twenty years. This will roughly double the present supply.

During the next five years achievements will be on a modest scale, but considerable progress already has been made. During the war, from 1941 to 1945, about one million dwelling units were built, of which 400,000, evenly divided between apartments and single family houses, were in cities. In the liberated areas, housing space for four million persons had been built or restored by the spring of 1946. Dneprostroi for instance, the enterprise rebuilding the Dnepr

Dam, had built for its workers half a million cubic meters of housing, mainly in four story apartment houses, together with two clubs, two libraries, and four movie theatres. In the countryside, rebuilding has been more rapid; in Byelorussia alone, in the course of two years, one and a half million villagers have been rehoused in 235,000 houses.

The end of the war speeded up building activities. Three days after V-E day, the provincial government of Magnitogorsk decided to increase its program by 1700 units of public housing and 700 private houses. For the country as a whole, housing construction doubled in 1946 as compared with 1945, while repairs increased by 50 percent. In the liberated areas, the first step is the replacement of temporary shelter in dug-outs, hutments or small movable houses, by emergency housing, at reduced standards. But as soon as possible, permanent housing is provided in new or restored buildings. Experience has shown that restoration costs as much as 40 percent of the original construction cost, even where walls and roofs are intact (21 percent for floors and ceilings, 14 percent for plastering, 7 percent for doors and windows).

The fourth Five Year Plan lays far more stress on housing than any previous plan, almost trebling the sum provided for housing in the third Five Year Plan. Housing will absorb 14.5 percent of all investments. This expenditure will result in the building of the equivalent of six million dwelling units (2,300,000 urban and 3,400,000 rural) in addition to dormitories for half a million persons. This is considerably more than we in this country have built in any five year period, though slightly less than the number "programmed" by our National Housing Agency. However, the need in the Soviet Union is certainly vastly greater than in the U.S., despite the current housing shortage. More than half the new houses are required to replace those destroyed during the war, and the balance will be hardly sufficient to keep up with the growth of the population.

In addition to traditional ways of building, new methods of prefabrication are increasingly being used by several ministries and factories have been established in all parts of the country. Eighteen plants started operations in 1946 alone, and by 1950 output is to be increased to 100,000 dwellings annually. So far, prefabrication has been limited to the manufacture of wooden panels for walls, roofs and ceilings, but prefabrication of entire sections and especially of the mechanical core is planned. However, complete prefabricated houses are not contemplated, though a small movable house has been developed.

Of the urban houses, almost 15 percent are to

¹A typical 4½ room unit in our public housing projects contains slightly less than 40 square meters of "housing space" as defined in Soviet statistics. As measurements in terms of "housing space" are unfamiliar to the American reader, they have been translated into dwelling units on the basis of 40 square meters per dwelling unit.

be built by the owners with the assistance of public and trade union organizations. Small houses built by the state will be sold to occupants on a ten year credit basis. In the devastated areas, the large houses are being rebuilt by government agencies, but smaller houses, up to 1600 square feet, are rebuilt by tenants who are granted long-term leases and reduction of rent and taxes as well as the right to sublet at controlled rents.

In the countryside, practically all houses will be built either by individuals with the aid of the collective farm organization, or by the farm for the individual, with payments spread over five years. The collective farmers will decide on the allocation of these houses, with priorities given to veterans and to war widows, and rebates will be granted in case of need. Traditional house-building techniques are used in rural areas. Frequently lack of nails and roofing materials forces recourse to the thatched roof in a somewhat improved fire-resistant clay and straw version.

City dwellers are also encouraged in every way to build for themselves. A popular pamphlet, "How To Build Your Own House," contains not

Many owner-built houses in villages feature cowsheds, haybarns, and other agricultural out-buildings on quarter-acre lots. However, in contrast to the peasant huts, they all have fire-proof roofs covered with tile, sheet iron, or asbestos shingles, and are wired for electricity and radio. They usually contain a kitchen of 50 to 60 square feet or a kitchen-dining room of 85 to 100, a living room or a living-bedroom of 120 to 160, and one to three bedrooms of 60 to 80 square feet each.

Compared to prewar practice, both the number and the size of the rooms are being reduced. Previously, design had been based on the assumption of the "sanitary norm" of 97 square feet per capita, and of a family of four, five, or six persons. However, as the available space averaged only slightly more than half the norm, most houses and apartments were occupied by two and three families. Now the facts are being faced realistically, on the assumption of 64 square feet per capita and of a predominance of small families in the larger cities. A sample survey of Moscow apartment houses in 1940 showed a distribution of families by size not very different from that found in American cities. (see table one)

TABLE ONE

Distribution of Families by Size, Moscow 1940

1 person	10%
2 persons	21%
3 persons	26%
4 persons	24%
5 persons	12%
6 persons	5%
7 or more persons	2%

only the usual information on traditional building methods, but also on the making of gypsum blocks, earth blocks, and brick vaults, on the utilization of brick rubble, and on simple material tests.

Contrasting with prewar years, the trend now is toward one and two story houses. This is in keeping with the traditional spacious character of Russian cities. Before the Revolution, nine-tenths of all houses were one story high, and even in 1936 more than 70 percent of all urban dwelling units were in one or two story buildings. In the smaller cities now being rebuilt, there are usually a few three or four story apartment houses in the center, surrounded by low buildings in gardens. In the totally destroyed city of Velikie Luki, for example, one half of the 12,000 dwelling units will be in two story flats and the other half in one story houses, at an average net density of six families per acre.

It is admitted that for a number of years it will be possible to build individual houses and apartments only for large and medium size families, while all families of one person, many of two, and some of three persons will still have to be accommodated in "communal" quarters; and these quarters are now frankly designed as such. One type contains three rooms of 135, 143, and 175 square feet, a kitchen of 65 square feet, with three gas ranges and three cupboards but only one sink, a toilet, and a washroom. An improved type contains, in addition to the sanitary facilities, three rooms of 193 square feet, each with a kitchenette of 30 square feet, and one room of 125 square feet with a kitchenette of 25 square feet.

Type and size of the family apartments are shown in table two.

TABLE TWO

No. of Persons	Apartment Total	Living- room	Area In Square Feet		Kit- chen	Sanitary Facilities	No. of Closets
			1. Bed- room	2. Bed- room			
4	670	225	135	88	65	bath & W.C.	3
3	560	210	150		65	bath	2
2	500	210	72		65	bath	4
4	390	155	110		52	bath	2
3	330	145	75		43	shower	3
2	265	140			40	shower	1
4	330	130	115		35	W.C.	1
3	265	190			35	W.C.	1
2	200	127			35	W.C.	1

The middle group represents the predominant type. The third group is a "simplified" emergency type, whereas the upper group represents an "improved" type of which a relatively small number will be built for scientists, artists, and other privileged persons. All apartments are arranged in a simple "ribbon" pattern, one stair hall serving two "communal" or two bedroom apartments, or four apartments of smaller size. The first group retains the excessive prewar height per story of ten feet; in the other types the height has been reduced to nine, and there are advocates of the American standard of eight feet. The shape of the rooms and the placing of doors, windows, and closets have been studied to allow for rational arrangements of furniture of standard dimensions; this enables the occupants to make the best use of the limited space.

The emphasis is now definitely on livability instead of on the false monumentality frequently to be observed in prewar housing. In the journal *Planned Economy*, for instance, a writer calls for "open courts and intimate interior courts combined with greenery . . . no superfluous decoration. So called beautifications — columns, immense arches and parapets, marble pedestals, etc. had already been condemned by public opinion and by the government before the war."

Together with this turn toward the intimate, there is an increased interest in the national heritage. In Moscow an exhibition and lecture on the architectural history and reconstruction of Leningrad aroused great interest; in the discussion many soldiers showed themselves to be well informed. Among the 400 books published in 1946 by the Academy of Architecture are not only volumes on the history of city planning, on the history of dwelling houses in the Caucasus and in Central Asia, and on national art, but also books on American housing and city planning and on the work of contemporary architects such as Frank Lloyd Wright, Auguste Perret, and Le Corbusier.

As in our country and elsewhere, the tendency to provide any housing, anywhere, anyhow,

greatly endangers the rebuilding of cities in accordance with a comprehensive plan. "It is characteristic of Smolensk and other towns", we read, "that all the inhabitants who have returned strive to build their houses on the exact sites of the old homes."

However, the Soviets have from the beginning taken a firm stand against the temptation to follow the line of least resistance. In 1943 the late President of the Union, Michael Ivanovich Kalinin, wrote, "Now the question arises — how to rebuild. We may simply restore the buildings on the foundation of the old plan, or we may provide a new plan. It seems to us that all creative forces of our architects and builders should be devoted to this matter, and, in the first place, the adequacy of the old plan should be subjected to review. . . . It may be objected that the replanning of cities complicates and even delays building and that this measure is achieved at rather high cost. I agree completely, but I still think it has to be done. After all, cities are rebuilt for centuries, and therefore monetary expenses in this matter have to be approached without stinginess."

In general, the policy is not to reconstruct any heavily damaged building if it would interfere with the city plan. Slightly damaged buildings, however, are demolished only in the interest of substantial improvement to the city as a whole; otherwise the plan is adjusted to permit their preservation.

In the countryside, most villages are rebuilt spontaneously by the farmers on the old site. "It is logical for people to want to live and work where their fathers and grandfathers lived before them", said architect Kolley² in a report on the reconstruction of farm villages at a session of the Academy of Architecture. In most cases therefore planning is restricted to creation of a center

² Kolley, one of the first Russian representatives of what Americans choose to call the "international style" was Le Corbusier's partner in the construction of the building of the Commissariat of Light Industry in Moscow. It is interesting to compare his acceptance of the feelings of the common farmer with Le Corbusier's proposals for the liquidation of the historic French village.

with the community buildings, and of a rationally organized site for the buildings required by the collective farm economy. In every district a model village with model houses and other buildings is built under the guidance of an architect, who supplies plans to the farmers of the district.

For the collective farm buildings, a site of four to ten acres is chosen close to the center of the *kolkhoz* fields, but at a distance of 200 to 700 feet from the houses, preferably downstream and leeward, and so located that tractors and cattle can reach the fields without crossing the settlement.

The other new element for which the traditional village plan provides no location, the community center, must contain sites for the following buildings, dependent on the size of the village:

TABLE THREE

	All Villages	500 Population	1000 Population	2000 Population
<i>Kolkhoz</i> administration	x	x	x	x
Reading room	x	x	x	x
Nursery school	x	x	x	x
Kindergarten	x	x	x	x
Bath house	x	x	x	x
Fire station	x	x	x	x
Elementary school (40 stud. min) . .		x	x	x
Store		x	x	x
Dining room (40 seats per 1000 pop.)			x	x
Bakery (1000 pounds daily)			x	x
Club (hall for 150 persons min) . . .			x	x
Barber shop			x	x
Tailor and cobbler shop			x	x
"Medical point" (nurse-midwife) . .			x	x
Ten-year school (400 stud. min) . . .				x

The lots owned by the individual farmers are generally not replanned, but a setback of 17 to 20 feet is usually required. Temporary houses are built in the rear of the lot so as not to obstruct later erection of the permanent house in the normal location. Where lots are too long and narrow, as is frequently the case, attempts at reallocation are made.

One interesting method is being used to achieve such reallocation gradually, in two steps. It is being applied in the village of Kornevskoye in Moscow Province. Here a new street has been laid out parallel to the main street and every second farmer has rebuilt his house in the rear of his own lot. This was acceptable to the householders because they could work their lots better from this central location. They were, however, not willing to exchange the front half of their lots for the rear half of their neighbors', because the rear ends of the lots had been neglected. Such an exchange is to take place at a later stage, when cultivation

will have equalized the value of front and rear parcels.

Destroyed villages which were poorly located are being rebuilt on new sites. This is done where villages suffered from floods, or from lack of pure water, or were located on swampy ground, but most frequently where they were built on a heavily traveled highway. Also, if a village was too small to support a normal economic and social life, attempts are made to merge it with a neighboring village.

The task of selecting a new site and working out a new plan is entrusted to a committee consisting of the president of the *kolkhoz*, representatives of the township and county, a planner, a surveyor, an agronomist, a hygienist, and other experts, who work in collaboration with the *kolkhoz* members. The final decision must be

made by the general assembly of the members and confirmed by the county council. Considerations in selecting a site are proximity to a highway, but with a separation of at least 300 feet, good water, high land, but not on windy hilltops, and preferably a southern slope. The street system is determined by the topography and the size of the village. Streets are 80 to 100 feet wide for cattle driving. The lots are usually about 100 feet by 300 feet, with space for house and farmyard, orchard, and vegetable garden. Non-farm families receive lots of 16,000 square feet. If the village is large enough to support a school, the minimum size of the site is five acres, with ten acres for villages of over 250 families; the school building itself preferably is oriented southeast. The entrance to the village is frequently emphasized by an arch, or by posts, trees or seats.

While the planning of farm villages is a new field, most cities had officially confirmed plans before the war. These are now modified to adapt

them to changes resulting from war destruction or from new technical and economic developments. By the end of 1946, plans for the reconstruction of over 100 towns in Russia and 75 in the Ukraine had been completed. By decision of the government, a special program was adopted for the rebuilding of fifteen cities which had suffered more complete destruction than most. The program sets out detailed functions for the agencies of each ministry in each city. Efforts are to be concentrated primarily on the comple-

dition to the protective green zones and to the green belt surrounding each city.

Important modifications of prewar plans result from the increased use of one and two story dwellings, which in smaller towns will be used exclusively. In cities of 25,000 or more, the central part may consist of three and four story walk-up apartments. There will be a few elevator apartments in selected locations, in cities of over 100,000. There are usually four residential zones with the following characteristics:

TABLE FOUR

Type of Zone	Dwelling Units per Acre	Number of Stories	% Coverage (Maximum)
Semi-rural	3-4	1-2	15
"Settlement"	10-12	1-2½	25
Flats	30-40	2-3	35
Apartments	40-60	3-4	35

tion of one section of each city at a time. In general, rebuilding proceeds from the center toward the periphery, with a high priority for the restoration of architecturally and historically valuable buildings.

The projects follow the generally accepted principles of Soviet city planning: separation of clearly defined industrial and residential districts by protective green zones; a strongly emphasized city center, together with fully developed secondary centers; ample provision of parks and green spaces with particular emphasis on reclamation of lake and river fronts; a preference for broad plazas and avenues with impressive vistas, together with a lively interest in the silhouette of the city, generally rising from the periphery toward the center.

Each industrial district is served by an integrated railroad system which avoids the residential areas. Prohibitions against erection of residential buildings in the protective green zone have been strengthened. Through highways are to bypass the cities or to be placed in park strips; where this is not possible, there are to be parallel service drives. City streets are divided into three categories: 1. "Main thoroughfares", 83 feet to 135 feet wide, at intervals of about half a mile. Department stores, movies, clubs, etc. are to be built on these thoroughfares. 2. "Service streets", 40 feet to 67 feet wide, with setbacks of at least 10 feet, and service drives of 20 feet to 30 feet. No trolleys or trackless trolleys are to run on these streets. 3. "Special streets" for trucking or through traffic and park drives. Areas for off-street parking are required at all public buildings, markets, factories, railroad stations, theatres and movies. Five acres of green space are required for each 1,000 persons, in ad-

The basic unit remains the "residential *rayon*" of 20,000 to 100,000 population, bounded by greenstrips or major highways. But there is much discussion of the suitable size and character of the "living complex", the smaller unit within the "residential *rayon*". In this connection there is keen interest in the corresponding American and British concepts of the "neighborhood". It is agreed that the block as the nuclear element of the city is outdated, but there is no agreement on what should take its place; "super-block" and "micro-district" seem to be popular concepts. There is, however, general acceptance of the essential functional requirements: access from home to school without crossing of busy streets; a shopping center within not more than 10 minutes walking distance; playgrounds for children within easy reach, and areas for passive recreation for older people not more than five minutes from their homes.

Normally, a neighborhood is planned as a unit for 3,000 to 7,000 persons with an interior green space containing the school, kindergartens for 60 percent of the three to seven year olds, nursery schools for 30 percent of those from less than one year to three years of age, places for quiet recreation, and, sometimes, a laundry and other service buildings.

Technical improvement of public utilities goes hand in hand with the rebuilding of the cities. Starting in 1947, the three largest cities were supplied with natural gas from sources several hundreds of miles distant: Moscow from the middle Volga, Leningrad from the Estonian oil shales, and Kiev from the Carpathians. Central heating for districts is being extended. Subways will be introduced in Leningrad and Kiev, and in Moscow the existing system of six

radial lines will be supplemented by a 12 mile circle connecting seven passenger stations. The suburban railroads, hitherto electrified only around Moscow, Leningrad, and Baku, will be electrified in four republican capitals, Kiev, Minsk, Riga and Vilno, and also in Kharkov, Rostov and Sverdlovsk in the Urals. Dozens of smaller cities will for the first time have trolley cars or trolley buses, and modern water and sewer systems.

The relation of the neighborhood to the larger unit of the "residential *rayon*" and the community facilities normally provided in each *rayon* can be seen from the following table for a community of 40,000:

TABLE FIVE

Type of Institution	Number of Persons Served	Number of Units	Persons per Unit
Neighborhood	40,000	6-10	4000-7000
Schools	8,000	10	800
Kindergartens	2,400	12-40	60-150
Nursery schools	960	8-16	60-120
Theatre			400 seats
Movie theatre			400 seats
Restaurant	10,000		1700 seats
Hotel			200 beds
Hospital			350 beds
Clinic			400,000 visits annually
Public bath			350 places
Public laundry	8,000		
Service garage			400 cars

As a result of the relocation of industry, several entirely new cities will be built. A city of about 50,000 population is planned for the new Transcaucasian Metallurgical Works. Here the residential district will be separated from the works by the river Kura and by a large river-front park, with the three main streets radiating from the center of the city.

When existing cities are replanned, the plans are fully discussed in mass meetings and conferences. This is done even in completely destroyed cities such as Smolensk, where such discussion led to substantial modification of the location of industries, the use of the river banks, and the street layout.

In cities not destroyed by the war, the pre-war plans are usually carried out with minor modifications. In Moscow, the most important change, in connection with the greater emphasis on two story houses, is an extension of the city's area to 150,000 acres. A greater percentage of the population will be housed on the plateau southwest of the city center. This section enjoys favorable climatic conditions due to its situation windward of heavy industry and to its elevation of 300 feet above the Moskva River. The park

system is being extended to include six forest parks, 15 general parks for city-wide use, 20 sport-parks, 40 *rayon* parks, and 80 children's parks. The period for carrying out the complete master plan is now expected to be closer to thirty years than to the fifteen originally scheduled.

Similarly, in the Baku metropolitan area, the satellite city of Sumgait, planned in the early thirties, is only now being built. In other cities, development has been more rapid than expected. Stalinsk in Siberia, for instance, was planned in 1930 for an ultimate population of 165,000. It had 225,000 residents in 1945, and the new plan provides for growth up to 600,000.

In Leningrad, reconstruction follows the plan worked out in 1935-38 with some improvements of traffic thoroughfares. Other changes will develop further the beauty of the city, its intimate connection with majestic expanses of water. A broad boulevard to the sea will be built on Vassily Island, a square will be opened up from the Finnish Railroad Station to the Neva, and a large city park will be created along the banks of the river.

In Kalinin, the plan of the old city, a masterpiece of late 18th century city planning, is being carefully preserved despite heavy destruction. In Rostov, the former rather drab gridiron pattern will be improved by a sequence of squares following a main artery, and the banks of the Don are being reclaimed for a park. In Kiev, where the population is expected to grow from its prewar 900,000 to one and a half million by about 1960, expansion is planned both on the plateau to the northwest and on the eastern bank of the Dnepr, and an island between this new residential district and the old city is being transformed into a 2,000 acre park. The cultural, educational, and shopping facilities are being systematically decentralized.

In some cities, planners are taking advantage of war destruction to improve the city pattern fundamentally. In the Estonian capital of Tallinn, heavy industry and the main classification yards were located in the northwestern part of the city. Both are now being relocated in the eastern suburbs, on the leeward side of the residential districts.

In Novorossiisk, the residential areas were interspersed with the cement works which are the main industry of the city. In the future, the bulk of the population will live on the south side of the bay, while heavy industry will be located on its northern shore. Both sides will be connected by a highway skirting the bay and by motor launches. At the head of the bay a rail-bus-water terminal for tourist travel and hotels and tourist hostels will be built. The waterfront on the south side will be reclaimed for recreational purposes, with the main square of the city as a center. The street pattern is being redesigned to follow the contours. The houses of the city, one, two and three stories high, will be developed on horizontal terraces, emphasized by the contrasting vertical line of a monumental tower on the central plaza to commemorate the heroic defense of the city which marked the turning point of the German advance along the coast of the Black Sea. Novorossiisk suffers from floods as well as from high winds from the northeast. As a protection against both dangers, reforestation of the surrounding hills is included in the plan. This is to be supplemented by several densely planted parkways in the city and by flood control basins in the hills, which also serve as supplementary sources of industrial water supply.

Responsibility for the planning of each of these cities, lies with an architect who heads a group which includes economists, engineers, hygienists, landscape architects, and other specialists. The work receives over-all guidance from the Committee on Architectural Affairs. Within this general framework, a number of organizations cooperate. The general plan for the reconstruction of Stalingrad, for example, was worked out by the Academy of Architecture and confirmed by the Committees on Architectural Affairs both of the Russian Republic and of the Soviet Union. The projects for different sections of the city were worked out by *Gorstroiprojekt* (City-Building-Project), an organization of the Ministry of the Building Industry.

The new plan of Stalingrad accentuates and

develops the original pattern, a number of separate units, each consisting of industrial plants with a workers' settlement, strung out over a length of forty miles on the slopes which descend from the steppe plateau to the banks of the Volga. In the new plan the waterfront is cleared of railroads, warehouses, and industries, and the open spaces between the built-up areas are freed from encroachments and developed as parks. Each unit is to have the character of a small or medium sized town, with a central square on the height of the plateau. Major traffic arteries are to skirt these communities. There will be three major arteries paralleling the river: a lower one, connecting the industries through the waterfront park; a middle one, connecting the centers of the residential sections with the city center (generally running above the industries, but below the residential sections); and an upper one, serving as a peripheral trucking highway.

In the central section of the city, the middle artery assumes the character of the main street with public buildings, banks, theatres, etc. It is crossed at right angles by a 300 foot wide boulevard leading from the river bank up to the main square of the city which is crowned by a huge memorial. Public buildings and monuments will stand out against the background of the residential sections with their quiet, simple, intimate architecture, mostly two stories high, with some three to five story houses in the center and a few higher buildings accentuating some points along the waterfront.

The whole city will be surrounded on the land side by a forest belt, and the green of the parks will be supplemented by shade trees in the streets. The open area inside the blocks will be largely allotted to the individual houses because of the difficulties of maintenance of large public yards.

It is certainly difficult, as American visitors state, to visualize the future city in the rubble of present day Soviet cities. Yet, with a comprehensive national plan of economic development and with detailed plans for the physical rebuilding of every city, the future path of reconstruction can be traced with reasonable certainty. Only two circumstances might bring fundamental changes: total war — or total peace. A state of affairs which would allow the country to divert to reconstruction all resources now earmarked for national defense would make possible a far more rapid improvement of the standard of living than has been scheduled by the fourth Five Year Plan.